



**IV. Mathews County Today and Tomorrow:  
Conditions, Opportunities, Policies and Strategies**

***Transportation***

With the exception of a few intersections where improvements may be warranted because of the traffic movements (e.g., Route 14 and 198 and Route 3 and 198), the transportation corridors in Mathews serve the County well. Maintenance of stormwater ditches should be improved; however, this will require a collaborative effort between VDOT, the County and private property owners in order to effectively improve stormwater management along County roads.

There should be a discussion with VDOT to identify the feasibility of an alternative route to bypass Route 14 to the east of the Courthouse area. In an emergency event, such as a hurricane, if Route 14 (Main Street) is blocked due to flooding, there is no primary access route to evacuate residents in the southern and eastern portions of the County. A potential alternative route could be a north/south road east of the Courthouse area connecting Tabernacle Road to Buckley Hall Road. In addition, since there is only one bridge to Gwynn's Island, alternative means for evacuating residents of the Island in the event of a hurricane should be identified.

The 2035 Regional Transportation Plan should be adopted as an amendment to this Comprehensive Plan.

***Recreation***

Recreation opportunities are very promising for Mathews County in the future. Increased public access to shorelines and waterfront facilities can provide citizens and visitors with wonderful experiences and resources that have been so highly valued by residents for generations. The 2003 *Statewaters Access Plan for Mathews County* provides an extensive inventory of public facilities and makes recommendations for potential improvements. This plan is scheduled to be updated with respect to recommendations for improvements and priority facilities. The East River Boat Yard property in West Mathews offers great potential for additional public access.

In addition, there are increased opportunities for use of existing bicycle routes and blueways, which can promote the County as a seasonal destination. In general, these compatible recreation activities are sensitive to the environment and beneficial to the local economy.

At present, the County does not have an adopted Parks and Recreation Master Plan. This type of planning document would be very beneficial in assessing the existing facilities and programs in the County. The document could be developed in coordination with the YMCA and other recreational programming agencies and could provide a more detailed and directed plan for public needs and future recreational opportunities within the County. The County has reaffirmed its interest in creating a Bicycle and Pedestrian Plan in promoting the tourism aspect of its economy. The County may work with MPPDC who has transportation funds through the Rural Transportation Work Program to provide technical assistance on bicycle and pedestrian plan creation. Additional funding sources may be available through the Transportation Alternative Program.



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***Emergency Services***

Public emergency systems and public response for hazards are important future issues that will need to be carefully monitored on an annual basis. While the existing volunteer emergency/fire system is working well in Mathews, there should be an annual review of emergency events, response times/coverage, facilities, and equipment, etc. to ensure that the public's health, welfare, and safety needs are met. At present, the County is supplementing volunteer services at primary facilities during peak weekdays and weekends; additional funding and staffing may be required in the future.

Storm surges and flooding from coastal storms will continue to be a challenge, especially in those areas of the County that have higher potential for flooding and only have one primary access road. With possible climate changes and rising sea levels, coastal living and public safety issues will require careful attention to land use management and public education.

***Education***

Continuing education and workforce training will be most beneficial for residents and businesses. With the aging population, declining numbers of school children, and the increasing trend for youth to move to more populated, employable areas, it will be especially important to promote technical training and continued education for residents. Educational opportunities should be for both technical and cultural purposes and can be made available by both public and private entities. These opportunities can be enhanced with and expanded broadband communication system and increased collaboration among educational providers.

***Human Services***

County officials have recognized the growing citizen interest in suitable residential options for seniors in order to allow residents to age and remain within their home county. At present, there is only one senior care facility in the County, thereby limiting options for those who may want or need alternative housing or assisted care.

**Planning/Development Policies, Action Strategies for Public Facilities & Services 2030**

Planning / Development Policies and Strategies for Public Facilities & Services	
PFS 1	A safe water supply for Mathews County is critical for public safety and community well-being. Existing and new development in the County should protect water quality and quantity.





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**Planning / Development Policies and Strategies for Public Facilities & Services**

	1. In considering expansion of existing development or new development, there should be an assessment of water demand for the proposed use and potential effects on water quality and quantity. Suitable provisions should be employed for water conservation and for adequate treatment of sewage, including regular monitoring and maintenance of systems.
	2. <u>Consider adopting groundwater protection measures such as a wellhead protection program to better protect water supplies.</u>
	3. When the Regional Water Supply Plan update is completed and approved, the County should adopt it as an amendment to this Comprehensive Plan. Important recommendations should be incorporated into this plan's strategies for Public Facilities and Services. Consider developing a Master Utility Plan for the County.
	4. Recognize that development of a public water system for the Mathews Court House area is inevitable in the long-term to satisfy public health, fire suppression and economic development needs. <u>Explore possible federal, state and local funding sources for the development of a public water system.</u>
	5. Amend the subdivision regulations to require approved community water systems for residential subdivisions of fifteen lots or more. Work with Virginia Department of Health and include appropriate design requirements for water systems and provisions for maintenance.
PFS 2	<b>Land development along County entrance corridors and adjacent to the Mathews Sanitary Sewer Transmission Force Main line must be carefully planned. New development should be well-designed to enhance the corridor and to minimize effects on public services along the corridor.</b>
	1. Adopt a Corridor Overlay District along John Clayton Memorial Highway and Buckley Hall Road from the County border to historic Mathews Court House. Establish design standards for setbacks, landscaping, signage, access, and general building and site design.
	2. Encourage business development in designated commercial centers along the Sanitary Sewer Transmission Force Main. Include provisions for evaluating service requirements along the line to ensure available capacities and appropriate land uses.



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**Planning / Development Policies and Strategies for Public Facilities & Services**

PFS 3	<p>The availability of a state-of-the-art telecommunications network in Mathews County is important to economic development, education and the overall quality of life. Broadband services must be expanded in the County in order to bridge the digital divide. The County should seek funding and lobby for inclusion in initiatives to expand the network.</p>
	<p>1. Work with relevant local and state agencies to expand broadband opportunities within the County. Consider grant and funding opportunities that can assist in implementing and expanding the network. Utilize planned improvements to existing utility systems (private and public) to co-locate and incorporate the most current broadband technology.</p>
	<p>2. Establish a working telecommunications committee to advise County officials on important advances in telecommunication methodologies.</p>
PFS 4	<p>The Transportation Systems of Mathews County should reflect the rural character of the County while providing safe facilities for residents and businesses. New facilities and planned improvements should include sensitive environmental designs, effective traffic management measures, stormwater management measures, and alternative transportation features.</p>
	<p>1. Work with the regional agencies to develop an updated transportation plan that accurately reflects the desired transportation systems <u>improvements</u> for Mathews County.</p>
	<p>2. In developing new roads within the County, pursue alternative methods and best management practices for managing the velocity and quality of stormwater runoff. Consider sustainable stormwater practices such as low-impact design (LID) alternatives, stream buffers, reduced pavement and porous materials, trees and landscaping, etc. <del>Consider adopting a Stormwater Management Ordinance. Work with Chesapeake Stormwater Network to identify appropriate methods and alternatives. Inform developers and property owners of the requirements to obtain a Virginia Stormwater Management Permit from the Virginia Department of Environmental Quality (DEQ) for land disturbance activities of one acre-or more in area.</del></p>





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Planning / Development Policies and Strategies for Public Facilities & Services	
	3. <del>Consider establishing a</del> Explore all alternatives to pay for routine maintenance of existing outfall drainage ditches. <u>Establish a program to advertise for bid and award a contract to qualified bidders for ditch maintenance on an ongoing basis, subject to the availability of funding.</u>
	4. Work with VDOT to determine the feasibility of constructing an alternative north/south route east of Route 14 (Main Street) connecting Buckley Hall Road with Tabernacle Road.
PFS 5	Alternative modes of transportation, such as bicycle routes, sidewalks, and bus services, are important County facilities that benefit both residents and visitors. The County should pursue pedestrian and bicycle improvements in community commercial centers, near schools, and central public facilities.
	1. Apply for Transportation Enhancement Funds and other alternative transportation funding sources to assist in making improvements. Establish a priority list for bicycle routes to target funding for design, engineering and construction.
	2. Revise zoning and subdivision regulations to require pedestrian provisions and improvements for business development in community commercial centers.
	3. Designate and sign bicycle routes; develop a bicycle route guide.
PFS 6	Parks and public recreation areas are important community amenities that directly influence the community's quality of life and economic well-being. A well-thought out master plan is an effective tool for meeting community recreation needs and phasing capital improvements.
	1. Develop a Parks Master Plan that provides an inventory of public recreational facilities and programs and identifies needed improvements for the short and long-term.
	2. Improve directional signage to existing public beaches and water access points.



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Planning / Development Policies and Strategies for Public Facilities & Services	
PFS 7	Mathews County is recognized for its natural environment and inherent recreational amenities. Public access to the water and shores enhances residents' quality of life and is fundamental to the eco-tourism segment of the County economy. The County should continue to promote public access and appropriate facilities along its waterways and shorelines.
	1. Update the adopted 2003 Mathews County Statewaters Access Plan to assess public needs, priorities, and recommended improvements for water access. <del>Change the name of the plan to the Mathews County Public Waters Access Plan. Work with the Middle Peninsula Chesapeake Bay Public Access Authority to develop and conduct a survey to assess County residents' needs for new and/or expanded public water access sites and facilities.</del>
	2. Pursue site planning and recommended improvements to the East River Boatyard property for public recreation and access, <u>if economically feasible</u> . Consider grant funding for planning and construction (e.g., Virginia Department of Conservation & Recreation, Virginia Game & Inland Fisheries, U.S. Fish & Wildlife, and EPA Brownfields).
	3. Continue to work with VIMS and other partners to plan, map, and promote the Mathews County Maritime Heritage Trail.
	4. <del>Continue to support and collaborate with the Middle Peninsula Chesapeake Bay Public Access Authority to provide more recreational public access opportunities for residents and tourists of Mathews County.</del>
PFS 8	Effective public safety and emergency services are essential to the health and welfare of residents and visitors. Volunteer services are highly valued in Mathews County. Collaboration and regular communication with County officials and residents are essential to ensuring adequate emergency response and services.
	1. Continue to monitor annually emergency facility and response information and to identify community needs and challenges.
	2. Support public-outreach efforts to recruit volunteers and raise revenue for the purchase and maintenance of emergency equipment.





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Planning / Development Policies and Strategies for Public Facilities & Services	
	<del>3. Consider implementing an emergency response fee for non-emergency or false alarms to occupied residential/business structures or to vacant structures.</del>
PFS 9	Hazard Mitigation and Response Planning is important to community safety. Mathews County has special challenges with respect to coastal storms and flooding. Both public and private interests should be diligent in providing advance information and appropriate procedures for dealing with potential hazards.
	1. Reach out to seasonal non-residents and new residents regarding potential hazards and emergency preparedness and procedures; make information readily available at rental properties, local businesses, and civic areas.
	2. Develop a hazard mitigation strategy for addressing drought conditions and protecting water supplies. Identify specific strategies for addressing drought under “watch” conditions, “warning” conditions, and “emergency” conditions. Specify conservation procedures and adopt corresponding ordinances to manage water use.
	3. Adopt the goals, objectives and strategies <u>that specifically benefit Mathews County</u> from the updated Regional <del>Natural</del> All Hazards Mitigation Plan, <del>when completed and</del> approved by FEMA.
PFS 10	Continuing education and life-long learning are important to community well-being and prosperity. There should be a variety of educational opportunities available for all ages.
	1. Partner with area educational facilities to host special events, courses and training during evening hours or weekends to meet the needs of the community.
	2. Encourage collaboration among County civic organizations and educational facilities; share adopted work plans and programs; consider a community calendar, joint newsletter, web links, etc.
	3. Provide continuing support for educational programs and facilities that promote quality education for County schools. Encourage youth involvement in public decision-making and encourage excellence in communication among youth, school and governmental officials.



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Planning / Development Policies and Strategies for Public Facilities & Services	
PFS 11	The senior citizens of Mathews County are important to community well-being and the local economy. Senior housing alternatives and support facilities are important in maintaining this population segment's continued vitality and contributions to the community.
	<del>1. Update the County zoning ordinance to include provisions for alternative housing options for seniors. This could include such things as: age-restricted and assisted living communities, and accessory apartments for family members.</del>
	<del>2. Encourage additional senior living and support facilities in the County in appropriate locations to meet the human service needs of the community.</del>
PFS 11	County facilities must be maintained and accessible to the public. Some County buildings require substantial renovation. It is important to retain these historic buildings and rehabilitate them in a sensitive manner, while also meeting the public's needs for services and accessibility.
	1. Renovate the County Administration Building and other buildings located on the Historic Courthouse Green.
	2. Consider an energy audit for county-owned buildings to identify potential cost savings.





#### ***IV. Mathews County Today and Tomorrow: Conditions, Opportunities, Policies and Strategies***

##### **Public Facilities & Services: Special Action Projects**

Public facilities and services provide the supporting infrastructure for many important governmental activities that citizens and visitors need. The following paragraphs discuss some initial projects that can assist the County in progressing toward the established goals and strategies for Public Facilities and Services.

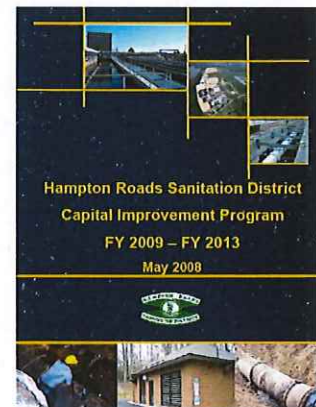
##### **Telecommunications and Broadband**

High-speed broadband and cutting-edge telecommunication technology are important to businesses and citizens. The broadband initiative is a County priority with many governmental and private partners involved in expanding services. Continued improvements in telecommunications and broadband should be promoted.



##### **Water and Sanitary Sewer Improvements**

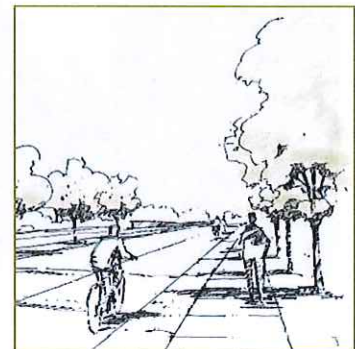
Implementation of Phase 1 of the Mathews Sanitary Sewer Transmission Force Main will provide better wastewater management in Mathews Court House, and potentially in the Hudgins and Cobbs Creek/Dixie communities. In addition, implementation will provide expanded opportunities for managing additional development along the project corridor. Options should be pursued for including conduit for broadband within the corridor, as well as considering bicycle or pedestrian trails within the right-of-way corridor. Both of these options provide public benefits and can be incorporated easily into the project.



Another public facility investment for the County could be a public water system to serve Mathews Court House. This project has been under consideration for several years. Other water supply projects that could be initiated may include: more stringent County standards for community water systems, well-protection measures, and increased septic system pump-out programs.

##### **Bike Route Planning**

Signage of significant bike routes may be one means of increasing public awareness of bicyclists and identifying designated biking corridors within the County. Funds are available through VDOT to assist in this signing effort.







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**Environment**

The environment of Mathews County is the major contributor to the overall quality of life and general economy of the County. The area's natural resources – waterways, shorelines, wetlands, forests, fields, flora and fauna provide sustenance and quality recreation for County residents, businesses and visitors. The County is fortunate to be adjacent to the Chesapeake Bay. Yet, this exceptional resource requires careful and meticulous planning and oversight in order to maintain its environmental features and sensitive ecosystem.



The public responsibility for protecting environmental quality and maintaining the delicate balance between nature and development lies with many local, state and federal agencies who must work collaboratively. Citizens and businesses also have an important responsibility to protect and maintain the quality of the environment in the County. Often, that recognition for environmental stewardship and pursuit of the common good falls secondary to personal interests; consequently, public education and regulatory controls are the tools most used to achieve established goals and benchmarks.

Mathews County should be and can be a model community for environmental stewardship and protection; its proud maritime heritage and prosperity has provided a stable foundation for generations and should continue fostering future generations. The quality of life that Mathews' residents enjoy today, and have enjoyed for generations, depends on strong environmental leadership.





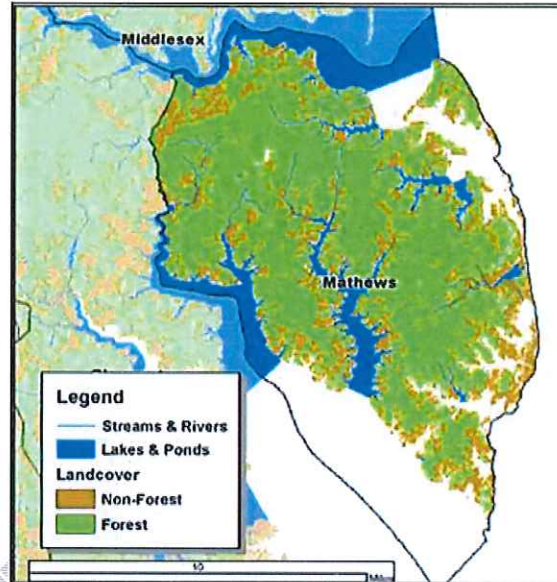


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##### **Forests and Agriculture**

Based on information available from the Virginia Department of Conservation and Recreation and the Virginia Tech Department of Forestry, approximately 62% of the land cover in Mathews County is forest. All of these forests are privately owned; none are public forest land. Forests are comprised of four different types: loblolly-shortleaf pine; oak-pine; oak-hickory; and oak-gum-cypress. The top ten species are loblolly pine, American holly, sweetgum, red maple, swamp tupelo, sourwood, blackgum, black cherry, hornbeam, and sassafras.

Over the past several decades there has been increased harvesting of these forests for lumber to meet market demands. In addition, changes in the water table and natural vegetative succession have affected forested lands, diminishing County resources.



Source: Virginia Department of Forestry 2003.

Of particular importance worthy of greater conservation efforts are the maritime forests of Mathews County. These forests are important coastal habitats that are now challenged by rising sea levels, erosion and land subsidence. They are important because of their ability to tolerate salinity, stabilize soils, withstand coastal storms, and provide refuge habitat. The documented maritime forests in Mathews County are shown on the map on the following page.

In addition to forests, much of the soils in the County are valued as important to agriculture. Unfortunately, poor drainage has diminished the value of some of these areas. The most productive soils are located near the shorelines of the County. These prime agricultural soils are shown on the map following the Maritime Forests map. "Prime farmland" has the best physical and chemical characteristics for producing crops.



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MARITIME FORESTS

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**PRIME FARMLAND**

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## **Coastal Resource Management**

Coastal ecosystems reside at the interface between the land and water, and are naturally very complex. They perform a vast array of functions by way of shoreline stabilization, improved water quality, and habitat for marine organisms; from which humans derive direct and indirect benefits.

The science behind coastal ecosystem resource management has revealed that traditional resource management practices limit the ability of the coastal ecosystem to perform many of these essential functions. The loss of these services has already been noted throughout coastal communities in Virginia as a result of development in coastal zone areas coupled with common erosion control practices. Beaches and dunes are diminishing due to a reduction in a natural sediment supply. Wetlands are drowning in place as sea levels rise and barriers to inland migration have been created by construction of bulkheads and rip-rap revetments. There is great concern on the part of the Commonwealth that the continued armoring of shorelines and construction within the coastal area will threaten the long-term sustainability of coastal ecosystems under current and projected sea level rise.

In the 1980s, interest arose in the use of planted wetlands to provide natural shoreline erosion control. Today, a full spectrum of living shoreline design options is available to address the various energy settings and erosion problems found. Depending on the site characteristics, they range from marsh plantings to the use of rock sills in combination with beach nourishment. Research continues to support that these approaches combat shoreline erosion, minimize impacts to the natural coastal ecosystem and reinforce the principle that an integrated approach for managing tidal shorelines enhances the probability that the resources will be sustained. Therefore, adoption of new guidance and shoreline best management practices for coastal communities is now necessary to insure that functions performed by coastal ecosystems will be preserved and the benefits derived by humans from coastal ecosystems will be maintained into the future.

In 2011, the Virginia Assembly passed legislation to amend §28.2-1100 and §28.2-104.1 of the Code of Virginia and added section §15.2-2223.2, to codify a new directive for shoreline management in Tidewater Virginia. In accordance with section §15.2-2223.2, all local governments shall include in the next revision of their comprehensive plan beginning in 2013, guidance prepared by the Virginia Institute of Marine Science (VIMS) regarding coastal resource management and, more specifically, guidance for the appropriate selection of living shoreline management practices. The legislation establishes the policy that "living shorelines" are the preferred alternative for stabilizing eroding shorelines. This guidance, known as Comprehensive Coastal Resource Management Guidance, is being prepared by VIMS for localities within the Tidewater region of Virginia and shared through their Comprehensive Coastal Resources Management Portal (CCRMP). It explicitly outlines where and what new





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shoreline best management practices should be considered where coastal modifications are necessary to reduce shoreline erosion and protect our fragile coastal ecosystems. This guidance will include a full spectrum of appropriate management options which can be used by local governments for site-specific application and consideration of cumulative shoreline impacts. The guidance applies a decision-tree method using a based resource mapping database that will be updated from time to time, and a digital geographic information system model created by VIMS.

The Center for Coastal Resources Management (CCRM) has developed a portal for Mathews County and the guidance information, including Comprehensive Plan guidance, is available through a link to the County's website ([www.co.mathews.va.us](http://www.co.mathews.va.us)) and is found on the Department of Planning, Zoning and Wetlands page. The link to the portal is <http://ccrm.vims.edu/ccrmp/mathews/index.html>.

Several recommendations for adoption identified in the CCRMP for a Comprehensive Plan are:

- Utilize VIMS' CCRMP Shoreline Best Management Practices for management recommendations for all tidal shorelines in the County.
- Consider a policy where the above Shoreline Best Management Practices become the recommended adaptation strategy for erosion control, and where a departure from these recommendations by an applicant wishing to alter the shoreline must be justified at a hearing of the Mathews County Wetlands Board.
- Encourage staff training on decision making tools developed by CCRM at VIMS.
- Follow the development of the state-wide General Permit being developed by VMRC.
- Seek public outreach opportunities to educate citizens and stakeholders on new shoreline management strategies including living shorelines.
- Consider preserving available open space adjacent to marsh lands to allow for inland retreat of the marshes under rising sea levels.
- Evaluate and consider cost-share opportunities for construction of living shorelines.

#### **Natural Heritage Resources**

The Virginia Department of Conservation and Recreation (DCR) identifies and protects natural heritage resources, maintaining a comprehensive database of documented occurrences. The database includes conservation sites that contain known populations of natural heritage resources and adjacent habitat vital for their protection and stewardship.

The DCR database is useful for aiding local and regional planning; screening development projects for potential impacts on natural heritage resources; identifying targets for acquisition and easements and guiding property restoration activities.



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There are several areas in Mathews County designated for conservation areas including Bethel Beach Natural Area Preserve, New Point Comfort Preserve, and most of the eastern shoreline of the County toward Milford Haven and Piankatank River.

Bethel Beach Conservation Site has a significant biodiversity ranking and features a long sandy beach, low dunes and extensive salt marsh. The Beach is essential habitat for several rare species, including the federally threatened northeastern beach tiger beetle (*Cicindela dorsalis*), which spends its entire two-year life cycle on the beach. Other species of special concern are the least tern (*Sterna antillarum*) and the sea-beach knotweed (*Polygonum glaucum*). Behind Bethel Beach is an extensive saltmarsh. This marsh is one of the few places in Virginia documented as a nesting site for the Northern Harrier (*Circus cyaneus*), a hawk that usually nests in more northern regions.

As development of natural areas and forest lands increases in Mathews County, natural heritage resources may be threatened. Forest fragmentation, introduction of invasive flora and fauna, and alteration of the local hydrology through land disturbance and/or sea level rise may change or eliminate habitat.

**Useful DCR References and Resources:**

Bethel Beach Natural Area Preserve Fact Sheet. Virginia Department of Conservation and Recreation, Natural Heritage Program.

[http://www.dcr.virginia.gov/natural\\_heritage/documents/pgbethel.pdf](http://www.dcr.virginia.gov/natural_heritage/documents/pgbethel.pdf)

Definitions of Abbreviations used on Natural Heritage Resource Lists

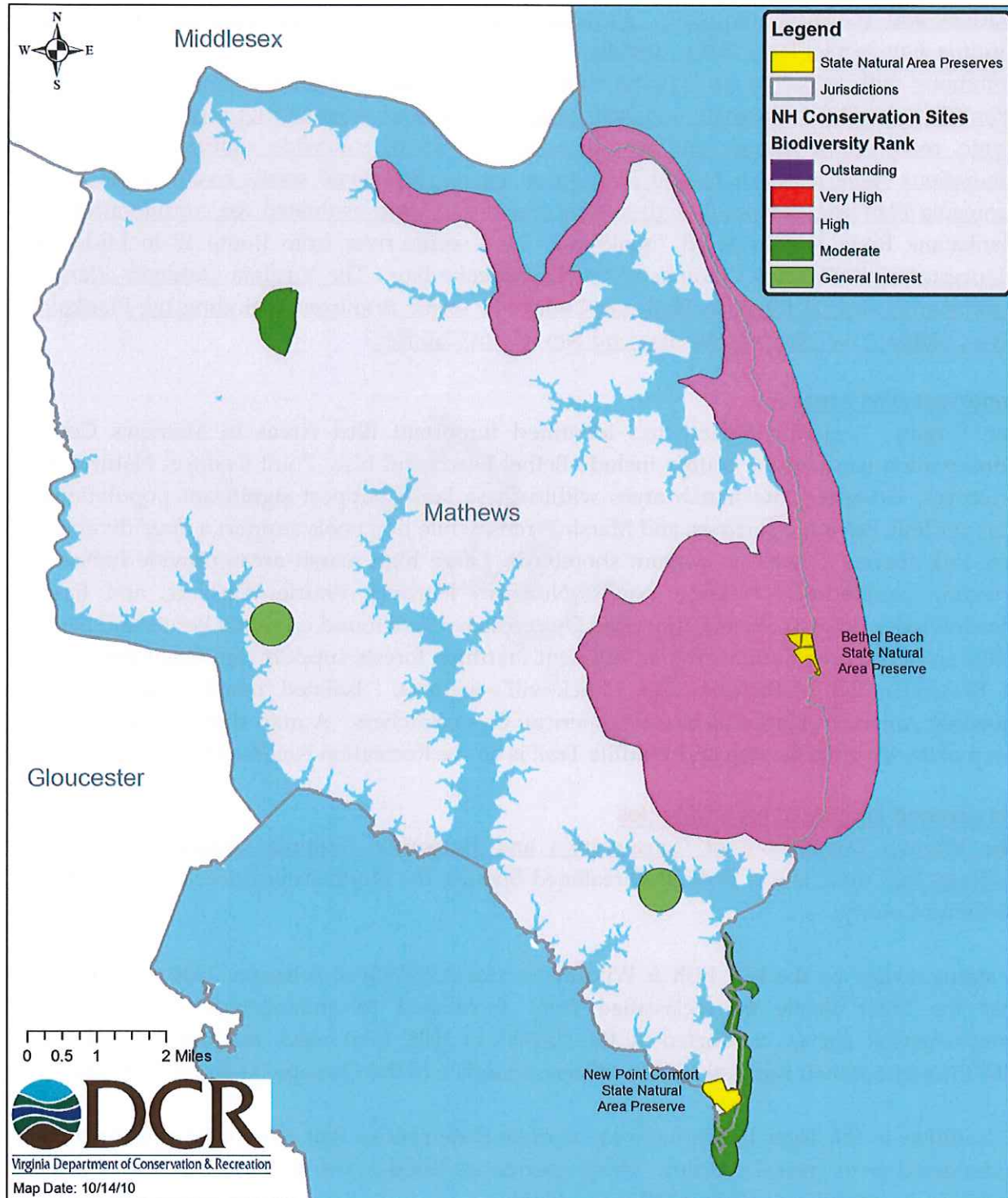
[http://www.dcr.virginia.gov/natural\\_heritage/help.shtml](http://www.dcr.virginia.gov/natural_heritage/help.shtml)





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**NATURAL HERITAGE CONSERVATION SITES**





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##### **Scenic Rivers**

Several waterways contribute to the region's natural beauty and economy by supporting the tourism and maritime industries. Virginia Department of Conservation and Recreation's Virginia Outdoors Plan (VOP) identifies scenic rivers and bodies of water throughout the Commonwealth as part of the Virginia Scenic River Program. Virginia Scenic Rivers Program's intent is to identify, designate and help protect rivers and streams that possess outstanding scenic, recreational, historic and natural characteristics of statewide significance for future generations. VOP states that as of 2013, there are no designated scenic rivers in the Middle Peninsula Planning District though several rivers are being evaluated for consideration. The Piankatank River is considered "qualifying" as a scenic river from Route 17 in Middlesex, Gloucester and Mathews Counties to the Chesapeake Bay. The Virginia Outdoors Plan also recommends several rivers in Mathews County as scenic resources, including the Piankatank River, Mobjack Bay, Chesapeake Bay and New Point Comfort.

##### **Important Bird Areas**

The Virginia Audubon Society has identified Important Bird Areas in Mathews County. Conservation lands in the county include Bethel Beach and New Point Comfort Natural Area Preserves. Extensive low marsh areas within these lands support significant populations of Clapper Rail, Seaside Sparrows, and Marsh Wrens, while tide pools support a large diversity of breeding species as well as migrant shorebirds. Large high marsh areas provide habitat for breeding populations of Sedge Wrens, Northern Harriers, Prairie Warblers, and Eastern Meadowlarks. Least Terns and American Oystercatchers are found on sandy berms and barriers while scattered pine hummocks and adjacent maritime forests support significant populations of Brown-headed Nuthatches and Chuck-will's-widows. Isolated marsh islands support breeding American Black Ducks and American Oystercatchers. A map showing the Mathews Loop of the Virginia Birding and Wildlife Trail is on the Recreation Facilities Map.

##### **Threatened and Endangered Species**

The Virginia Department of Conservation and Recreation Virginia Outdoors Plan (2013) indicates that there is one Federal Threatened Species, the Northeastern Beach Tiger Beetle, in Mathews County.

A status review by the U.S. Fish & Wildlife Service (USFWS) in February 2009 recommended that the Tiger Beetle be reclassified from threatened to endangered. Since the last comprehensive survey conducted by the USFWS in 2008, total beetle numbers have declined 70% throughout their range along the western shoreline of the Chesapeake Bay in Virginia.

In addition to the Tiger Beetle there are various State species that are considered threatened, endangered or of special concern. These species are listed in the table on the following page and include amphibians, birds, beetles and plants.





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Threatened and Endangered Species of Mathews County							
Scientific Name	Common Name	Global Rank	State Rank	Federal Status	State Status	Last Year Observed	Site Name
<b>Amphibians</b>							
<i>Ambystoma mabeei</i>	Mabee's Salamander	G4	S1S2		LT	2000	Blakes Ponds
<i>Ambystoma tigrinum</i>	Tiger Salamander	G5	S1		LE	1988	
<i>Hyla gratiosa</i>	Barking Treefrog	G5	S1		LT	1984	
<b>Birds</b>							
<i>Ammodramus caudacutus</i>	Saltmarsh Sharp-tailed Sparrow	G4	S2B,S3N		SC	1985	
<i>Asio flammeus</i>	Short-eared Owl	G5	S1B,S3N			1988	
<i>Cistithorus platensis</i>	Sedge Wren	G5	S1B,S1S2N		SC	1992	New Pt Comfort
<i>Circus cyaneus</i>	Northern Harrier	G5	S1S2B,S3N		SC	1994	Bethel Beach
<i>Sterna antillarum</i>	Least Tern	G4	S2B		SC	2007	Bethel Beach
<b>Communities</b>							
	Coastal Plain Depression Wetland	G3	SNR			1988	Blakes Ponds
<b>Invertebrates</b>							
<i>Cicindela dorsalis</i>	Northeastern Beach Tiger Beetle	G3G4T2	S2	LT	LT		New Point Comfort, Bethel Beach
<b>Vascular Plants</b>							
<i>Chelone obliqua</i>	Red Turtlehead	G4	S1			1979	
<i>Mitreola petiolata</i>	Lax Hornpod	G5	S1			1979	
<i>Polygonum glaucum</i>	Sea-beach Knotweed	G3	S2			2007	Bethel Beach
<b>Natural Area Preserves</b>							
Bethel Beach							
New Point Comfort							
<b>State Ranking:</b> S1-Extremely rare; S2-Very rare; S3-Rare to uncommon; S#B-Breeding; S#N-Non-breeding <b>Global Ranking:</b> G1-Extremely rare; G2-Very rare; G3-Rare to uncommon; G4-Common; G5-Very common <b>Federal Status:</b> LE= Listed Endangered; LT= Listed Threatened <b>State Status:</b> LE= Listed Endangered; LT=Listed Threatened; SC= Special Concern							

Source: Virginia Department of Conservation and Recreation, 2010.





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#### Virginia Coastal Zone Management Program

Mathews County is included in the Virginia Coastal Zone Management Program (CZM). This program was established in 1986 (and reauthorized in 2006) to protect and manage Virginia's coastal areas. It is part of a national coastal zone management program coordinated by the National Oceanic and Atmospheric Administration (NOAA) which provides funding for programs. The goals of the program are to protect and restore coastal resources, habitats, and species; restore and maintain the water quality of coastal waters; protect air quality; reduce and prevent losses of coastal habitat, life and property; provide for sustainable fisheries and aquaculture; promote sustainable ecotourism and increase public access to coastal waters; promote renewable energy production; ensure sustainable development on coastal lands; minimize coastal resource land use conflicts; and promote education. In Virginia, it is administered through a network of participating state agencies including: Virginia Department of Environmental Quality (lead agency), Virginia Department of Conservation and Recreation, Virginia Department of Game and Inland Fisheries, Virginia Marine Resources Commission, Virginia Department of Health, and the Chesapeake Bay Local Assistance Department; assisting agencies include the Virginia Departments of Historic Resources, Forestry, Agriculture and Consumer Services, and Transportation, Virginia Institute of Marine Science, Virginia Economic Development Partnership, and the Coastal Planning District Commissions.

Over the past several years, the CZM program has played a significant role in Mathews County's efforts to address environmental needs and issues by providing funding for various projects. MPPDC has been able to acquire funding through the CZM program to administer various shoreline erosion projects in the Middle Peninsula region. More specifically, the CZM program has made it possible for MPPDC and Mathews County to explore and formulate possible solutions to issues such as ditch maintenance, sea level rise and development impacts associated with recurrent flooding and the environmental and economic impacts of land conservation through philanthropic giving on local economies.

#### Chesapeake Bay Act

In 1988, the State of Virginia adopted the *Chesapeake Bay Act* which established the foundation for public policy and planning for the Chesapeake Bay, the largest estuary in the United States, and adjacent lands. In 2000, Virginia signed *Chesapeake 2000*, a partnership agreement with Maryland, Pennsylvania, the District of Columbia, and the Environmental Protection Agency, that committed the Commonwealth to a shared vision for a restored ecosystem and goals for the future related to living resources, habitat protection, water quality,

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#### Localities subject to the Chesapeake Bay Preservation Act







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land use and stewardship.

##### *Introductory Paragraph - 1988 Virginia Chesapeake Bay Act*

*"Healthy state and local economies and a healthy Chesapeake Bay are integrally related; balanced economic development and water quality protection are not mutually exclusive. The protection of the public interest in the Chesapeake Bay, its tributaries, and other state waters and the promotion of the general welfare of the people of the Commonwealth require that: (i) the counties, cities, and towns of Tidewater Virginia incorporate general water quality protection measures into their comprehensive plans, zoning ordinances, and subdivision ordinances; (ii) the counties, cities, and towns of Tidewater Virginia establish programs, in accordance with criteria established by the Commonwealth, that define and protect certain lands, hereinafter called Chesapeake Bay Preservation Areas, which if improperly developed may result in substantial damage to the water quality of the Chesapeake Bay and its tributaries; (iii) the Commonwealth make its resources available to local governing bodies by providing financial and technical assistance, policy guidance, and oversight when requested or otherwise required to carry out and enforce the provisions of this chapter; and (iv) all agencies of the Commonwealth exercise their delegated authority in a manner consistent with water quality protection provisions of local comprehensive plans, zoning ordinances, and subdivision ordinances when it has been determined that they comply with the provisions of this chapter."*

The Chesapeake Bay Act requires local governments to incorporate water quality protection measures into adopted plans and regulations; to define certain lands important to the water quality of the Chesapeake Bay; and authorized the Chesapeake Bay Local Assistance Board (CBLAB) to administer the program. The promulgated regulations developed by the Board required that local governments develop local programs to comply with the Chesapeake Bay Act and to promote high water quality, prevent pollution, and encourage water resource conservation. Every local program must incorporate the Chesapeake Bay Act provisions into the comprehensive plan, define important areas, and include measures to protect water quality in zoning, subdivision and erosion control ordinances. Planning tools governing development in the permitted land uses and development in sensitive areas should be consistent with the regulations and requirements set forth in Chesapeake Bay Act.

Chesapeake Bay Preservation Areas are defined in the Act as Resource Protection Areas and Resource Management Areas. These areas have specific elements defined to protect, as well as general performance criteria that must be met for any new or expanded land development.

- **Resource Protection Areas (RPA)** include: tidal wetlands; non-tidal wetlands connected by surface flow and contiguous to tidal wetlands or water bodies with perennial flow; tidal shores; and other lands considered by the local government that have intrinsic water quality value due to ecological and biological processes they perform or that are sensitive to impacts. In addition, there is a required buffer of not less than 100 feet adjacent to these lands.
- **Resource Management Areas (RMA)** include: floodplains; highly erodible soils, including steep slopes; highly permeable soils; non-tidal wetlands not included in the





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RPA; land areas less than five acres entirely surrounded by such land types; and a minimum area 150 feet in width landward of the RPA on lands where none of the RMA listed land types exist; and other lands considered by the local government to be necessary in protecting water quality. The RMA should be large enough to provide significant water quality protection in accordance with adopted land use and development performance criteria to reduce non-point source pollution.

The Virginia Department of Environmental Quality's Chesapeake Bay Local Assistance Program provides local program training, public education, technical assistance, and works with local governments to ensure that their programs are in compliance with the adopted regulations. Regional planning district commissions also act as liaisons in providing assistance to local governments. Implementation of the program for localities was scheduled in three phases:

- Phase I – designate and map Chesapeake Bay Preservation Areas, amend local ordinances to incorporate performance criteria, and establish a development review process;
- Phase II – review and revise the local comprehensive plan to include information on certain land use and development factors affecting water quality (e.g., identification of Chesapeake Bay Preservation Areas, physical constraints to development, character and location of commercial and recreational fisheries and other aquatic resources, water supply and protection, shoreline and soil erosion, existing and future land use, public and private waterfront access, and sources of water pollution). In addition, the comprehensive plan is to provide public policy statements relative to protecting water quality and implementation methods.
- Phase III – review and revise local development ordinances (zoning, subdivision, erosion and sediment control, etc.) to include specific notations on plats and development plans, and to incorporate provisions for minimizing land disturbance, preserving indigenous vegetation, and minimizing impervious cover.

Compliance reviews for consistency with Chesapeake Bay Preservation Act regulations should be done every five years, when feasible, in conjunction with the community's update of the comprehensive plan. As of 2008, an Annual Implementation Report is required which describes the community's development activity, history of exceptions, best management practices utilized, septic pump-out data, mapping of the RPA, and any violations.

To date, Mathews County has complied with Phases I and II of the program; County ordinances and designation of areas were found consistent, as was the 2001 Comprehensive Plan. For the benefit of consistency, the *Water Quality Improvement Plan* section of the 2001 Plan is included as an appendix to this document for the purposes of reference and the Chesapeake Bay Local Assistance Board approved compliance to date. The updated Comprehensive Plan 2030 builds upon this previous document, updates information and expands development policies as they





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apply to protecting water quality and sensitive environmental areas. In addition, future land use categories have been expanded to encourage land conservation and best management practices for development (see Future Land Use Section for details).

In 2016, MPPDC requested and received funding from the Department of Environmental Quality to assist Mathews County with Phase III Performance Standards implementation which coincides with the Comprehensive plan update and subdivision and zoning ordinance review. A part of the review process is to address deficiencies found during the Advisory Review conducted by DEQ. The County has adopted a Chesapeake Bay Preservation Area Overlay District as a part of the zoning ordinance that establishes Chesapeake Bay Preservation Area boundaries and buffers, land use and development performance criteria, water quality and environmental impact assessment requirements, and development plan review process. The ordinance is administered by the Mathews County Zoning Administrator and the Wetlands Zoning Board (tidal wetlands), which is served by staff of the Department of Planning and Zoning.

A Compliance Review & Analysis of the County's land use ordinances and policies was conducted by the Berkley Group as a consultant to the MPPDC. Their scope of work was to assess Mathews County's conformance with the Phase III requirements. The Berkley Group completed their analysis in August, 2016 and provided a report to the County. The findings of the report determined that the County's zoning and subdivision ordinances were in compliance as follows:

- The Zoning Ordinance effectively minimizes land disturbances through provisions for preserving open space, clustering, and clearing and grading requirements.
- The Zoning Ordinance effectively preserves indigenous vegetation through provisions to preserve and maintain vegetation within buffer areas, inclusion of provisions in the landscape plan to protect existing trees and other vegetation during clearing and grading, and requirements for environmental site assessments through a Water Quality Impact Assessment (WQIA).
- The Zoning Ordinance includes several provisions to ensure impervious cover is minimized. Such provisions include minimization of parking space size, alternative surfacing, shared parking, minimum parking lot aisle widths, shared driveways, and single-travel aisles in parking areas.
- County Code effectively protects water quality through the requirement to develop erosion and sediment control and stormwater management plans for land-disturbing activities exceeding 2,500 square feet in area
- Resource Protection Area land categories are effectively preserved.



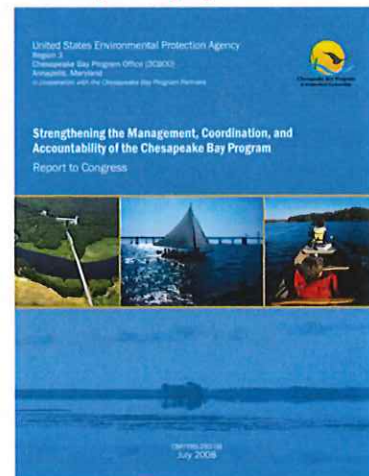
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- Resource Management Area land categories are compatible with requirements of the CBPA.

In a 2008 report to Congress, EPA advised that “Despite substantial effort and progress by the full spectrum of partners, the Bay’s health remains degraded. Restoration efforts are being overtaken by current trends. For example, population in the watershed has grown nearly 17 million bringing more roads, homes, industrial and business parks, and other impervious surfaces which harden the landscape. Development has drastically altered the natural hydrology and thereby the natural filtering systems for nutrient and sediment pollution.”

~~Another 2008 report, *Chesapeake EcoCheck*<sup>14</sup>, advises that the lower Chesapeake Bay region, where Mathews is located, was in moderate to poor ecosystem health (rated as a C-) with water quality in very poor condition and biotic conditions declining from 2007. One positive note, however, was that underwater bay grasses increased in 2008, providing greater assistance in filtering pollutants, producing oxygen, sheltering fish and crabs, and preventing erosion. In addition, there have been modest improvements in blue crab and eastern oyster populations.~~

A 2014 report by the Chesapeake Bay Program confirms that the Bay’s condition, while improved, still remains poor. Scientists monitoring important habitats, fish and shellfish and water quality measures, report that Bay’s habitat lower food web remains far below what is needed to support thriving populations of underwater life.

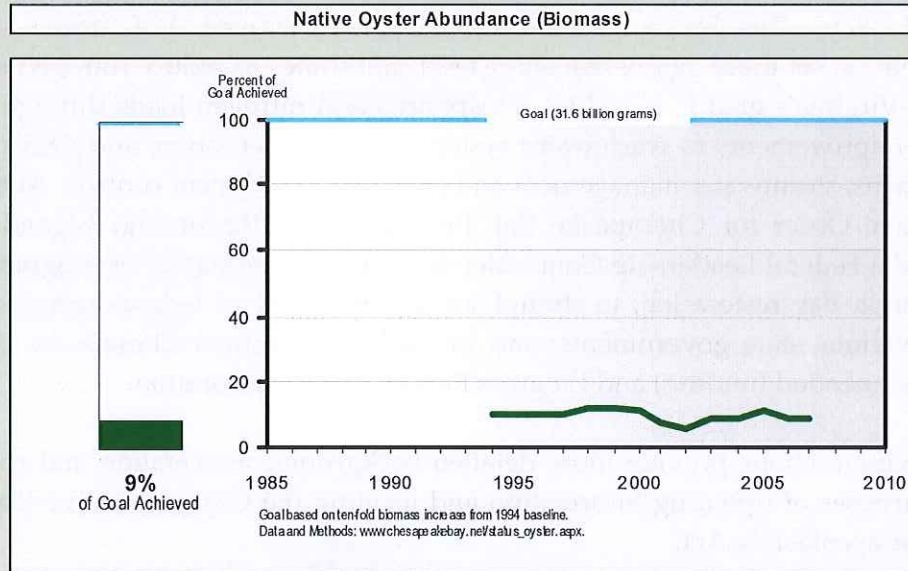






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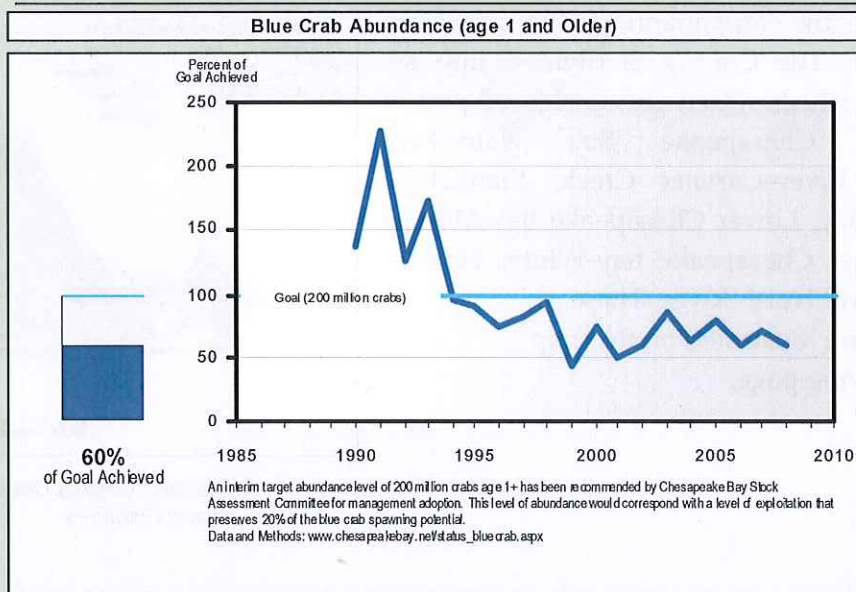
### Native Oyster Abundance (Biomass)



Chesapeake Bay Health and Restoration Assessment:  
Ecosystem Health March 17, 2009

1

### Blue Crab Abundance



Chesapeake Bay Health and Restoration Assessment:  
Ecosystem Health March 17, 2009

1

Source: Chesapeake Bay Program, [www.chesapeakebay.net](http://www.chesapeakebay.net)



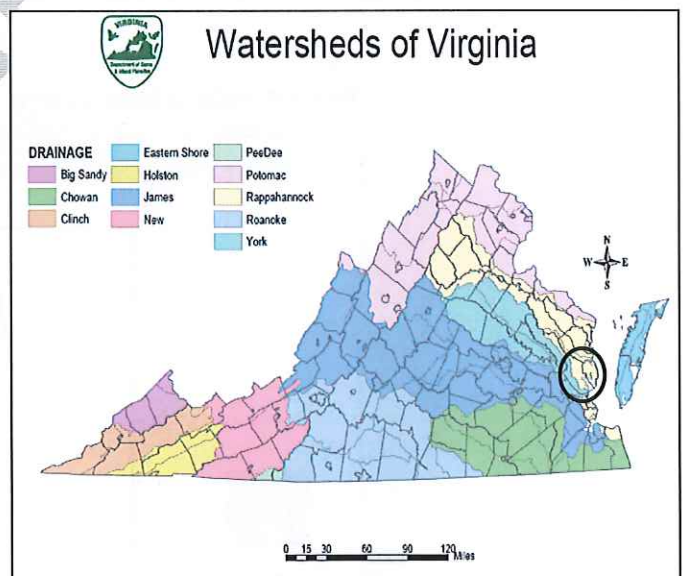
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~~During 2009, there has been increased leadership from the Governor of Virginia (as well as from other states) and the President of the United States in addressing pollution issues in the Chesapeake Bay. The Chesapeake Executive Council, comprised of various state and federal representatives, set more aggressive short-term milestones to reduce nitrogen and phosphorus by 2011—~~Virginia's goal is to reduce phosphorus and nitrogen loads through loan and grant funds for improvements to wastewater systems, land conservation, and BMPs for agriculture, septic systems, stormwater management and erosion and sediment control. At the federal level, an Executive Order for Chesapeake Bay Protection and Restoration (signed May 12, 2009) established a Federal Leadership Committee to oversee coordination of programs and activities involved with Bay restoration; to strengthen accountability of federal agencies; to collaborate with the various state governments; and to publish an annual Chesapeake Bay Action Plan (with recommended funding) and Progress Report for Bay restoration.

The following sections provide more detailed background information and recommendations for the purposes of updating information and meeting the Comprehensive Plan requirements for the Chesapeake Bay Act.

##### Watersheds and Existing Water Quality

A general map showing the watersheds of Virginia is shown to the right. Mathews County lies between two major watersheds in the State of Virginia – the Rappahannock River and the York River. The County is divided into six smaller watersheds which are considered part of the lower Chesapeake Bay watershed: Piankatank River–Carvers Creek, Piankatank River–Hills Bay, Lower Chesapeake Bay–Milford Haven, Lower Chesapeake Bay–Winter Harbor, East River, and North River. These watersheds are illustrated on the map on the following page.



Source: Virginia Department of Game and Inland Fisheries.





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**WATERSHEDS**

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In accordance with the Clean Water Act, the Environmental Protection Agency and the Virginia Department of Environmental Quality assess water quality and classify waters using five defined categories. These categories are shown and defined in the table to the right. A Draft 2014 *Water Quality Assessment 305(b) and 303(d) Integrated Report* provides a summary of the water quality conditions in Virginia from January 1, 2007, through December 31, 2012.

A summary of water quality conditions for various waters in Mathews County (2012) is described in the table on the following page. In general, most of the coastal watersheds in the County are impaired waters and classified as Category 4 or 5. Most impairment is due to fecal coliform levels which pose threats to shellfish harvesting. The sources of pollution in the watersheds were listed as either non-point source or unknown.

Water Quality Assessment Categories	Definition
Category 1	Water fully supports all designated uses.
Category 2	Water fully supports all designated uses that data are available for, but there is either insufficient or no information regarding uses that there is no data for.
Category 3	There is insufficient information to determine if any designated uses are being met.
Category 4	Waters are impaired or threatened but do not need a Total Maximum Daily Load (TMDL).
Category 5	Waters are impaired and do need a TMDL.

In June, 2013, the Virginia Department of Conservation and Recreation (DCR) in cooperation with stakeholders of Mathews, Middlesex and Gloucester Counties, developed a Total Maximum Daily Load (TMDL) Implementation Plan to address impairments to waterways and impacts on shellfish due to elevated levels of coliform bacteria and to develop actions to reduce bacteria sources. In Mathews, the waters that were identified as having unacceptable levels of coliform bacteria are the Gwynn's Island and Milford Haven watersheds which include:

- Edwards Creek
- Queens Creek
- Stutts Creek
- Morris Creek
- Billups Creek
- Lanes Creek
- Hudgins Creek
- Barn Creek

And, the Lower Piankatank River watershed which includes Cobbs Creek.





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Recommendations

Based upon stakeholder input from public meetings, the TMDL Implementation Plan recommends various actions to address impairments to shellfish waters:

- Develop and implement residential education programs focused on septic system maintenance, pet waste management and nuisance wildlife management
- Exclude livestock from waterways
- Establish and maintain vegetated buffers and wetlands
- Promote oyster aquaculture as a method to improve water quality
- Maintain roadside and outfall ditches in order to reduce the potential for coliform bacteria contamination of waterways.

A map of closed and condemned shellfish waters as of July 2010 follows the table. Because these conditions change, the most up-to-date information should be obtained from Division of Shellfish Sanitation, Virginia Department of Health, Richmond, VA 23219, [www.vdh.virginia.gov/shellfish](http://www.vdh.virginia.gov/shellfish).



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Watershed	Supports Uses Cat. 1 & 2	Insufficient Information Cat. 3	Impaired Cat. 4 & 5	Impairment Notes (2009) (For specific information and location, see report)
Barn Creek			X	Shellfishing - Fecal Coliform
Billups Creek			X	Shellfishing - Fecal Coliform
Blackwater Creek /Greenmansion Cove			X	Shellfishing - Fecal Coliform
Burke Mill Stream			X	Recreation - E coli Aquatic Life - Dissolved Oxygen
Chesapeake Bay & Tidal Tributary Segments (various)			X	Aquatic Life - Dissolved Oxygen Aquatic Life - Macrophytes Fish Consumption - PCB Fish Tissue
Cobbs Creek			X	Shellfishing - Fecal Coliform
Davis Creek			X	Shellfishing - Fecal Coliform
Doctors Creek			X	Shellfishing - Fecal Coliform
Dyer Creek			X	Shellfishing - Fecal Coliform
East River			X	Shellfishing, Fecal Coliform
Edwards Creek			X	Shellfishing - Fecal Coliform
Horn Harbor			X	Shellfishing - Fecal Coliform
Hudgins Creek			X	Shellfishing - Fecal Coliform
Lanes Creek			X	Shellfishing - Fecal Coliform
Miles Creek			X	Shellfishing - Fecal Coliform
Milford Haven			X	Shellfishing - Fecal Coliform Recreation - Enterococcus
Mobjack Bay			X	Aquatic Life - Macrophytes Aquatic Life - Dissolved Oxygen
Morris Creek			X	Shellfishing - Fecal Coliform
North River			X	Shellfishing - Fecal Coliform
Oakland Creek			X	Shellfishing - Fecal Coliform
Pepper Creek			X	Shellfishing - Fecal Coliform
Piankatank River			X	Aquatic Life - Bioassessment Shellfishing - Fecal Coliform
Put In Creek			X	Shellfishing - Fecal Coliform
Queens Creek			X	Shellfishing - Fecal Coliform
Raines Creek			X	Shellfishing - Fecal Coliform
Sloop Creek			X	Shellfishing - Fecal Coliform
Stutts Creek/Morris Creek			X	Shellfishing - Fecal Coliform
Tabbs Creek			X	Shellfishing - Fecal Coliform
Thomas Creek			X	Shellfishing - Fecal Coliform
Weston Creek			X	Shellfishing - Fecal Coliform
Whites Creek			X	Shellfishing - Fecal Coliform
Winder Creek			X	Shellfishing - Fecal Coliform
Winter Harbor			X	Shellfishing - Fecal Coliform





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**IMPAIRED SHELLFISH WATERS**

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**Aquatic Resources, Commercial and Recreational Fisheries**

Mathews County is known for its diversity of aquatic resources – natural shorelines, expansive wetlands, and productive environmental habitats. In 2004, VIMS prepared a “Blue Infrastructure” inventory of Virginia’s Coastal Zone<sup>15</sup> that identifies important economic and ecologic aquatic species and resources. These resources included: aquaculture sites, Baylor grounds, anadromous fish streams, oyster reefs, submerged aquatic vegetation (SAV), natural preserves, tidal mudflats and threatened/endangered waters, among others. A map of the blue infrastructure for Mathews County is on the following page. More detailed mapping is available from VIMS at <http://ccrm.vims.edu>. A more current copy of the inventory report is unavailable.

The County continues to work with regional agencies to promote and protect the area’s aquatic resources and commercial fisheries. The 2009 Mathews Aquaculture and Working Waterfront Project with the Middle Peninsula Planning District Commission identified important aquaculture assets and working waterfront sites in the County. The project included coordination with private interests and governmental leaders on future land use and development options to protect and preserve those resources.

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<sup>15</sup> Virginia Institute of Marine Science - Berman, Hershner, and Schatt, Center for Coastal Resources Management. October 2004. *Blue Infrastructure Final Project Report and Deliverables. Blue Infrastructure Criteria and Map.*





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BLUE INFRASTRUCTURE

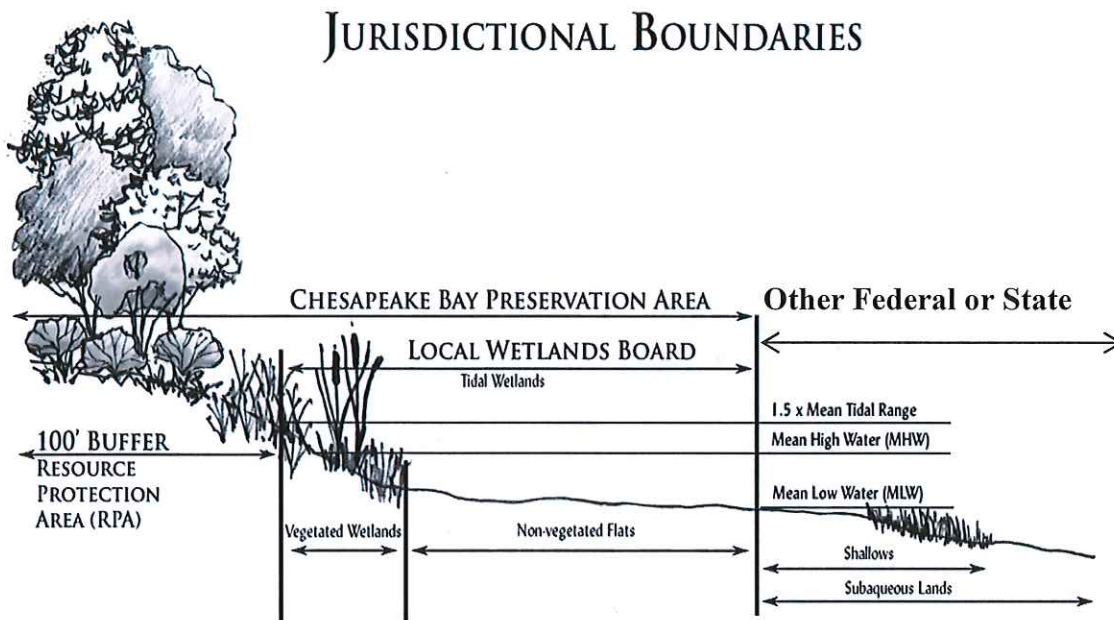
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**Chesapeake Bay Preservation Areas**

A map showing the Chesapeake Bay Resource Protection Area (RPA) and Resource Management Areas (RMA) in Mathews County, as defined by the Chesapeake Bay Act, is depicted on the following page. These areas are regulated by the Mathews County Zoning Ordinance as set forth in the Chesapeake Bay Preservation Area Overlay District. The district regulations include required performance criteria for development or redevelopment of land within these areas (e.g., minimal land disturbance, preservation of indigenous vegetation, best management practices, minimal impervious cover, control of stormwater runoff, etc.) and establish procedures for developing property. Development activities in a tidal wetland, such as a dock, shore stabilization, removal of vegetation, etc., must be approved by the County Wetlands Board. In addition, other federal and state agencies (e.g., Corps of Engineers, Virginia Marine Resources Commission, etc.) may be involved in development approvals. The graphic below provides a summary of the varied interests involved in reviewing activities in tidal areas.



Source: VA Department of Conservation and Recreation, Division of Chesapeake Bay Local Assistance





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CHESAPEAKE BAY PRESERVATION AREAS

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**Physical Constraints to Development**

Housing, Population and Demographics information provided in previous sections show a consistent pattern of decline in population growth, housing growth and development activity in the Mathews County. Various environmental factors contribute to the strain on growth and development in the County. One factor to consider is that much of the County's low elevation above sea level and includes many miles of shoreline. Thus, much of the land is subject to flooding and tidal inundation. Also, much of the County contains wetlands that are "transition zones" between land and water which provide important habitat for plants and animals, serve as significant processors for pollutants, and assist in stabilizing soils and protecting the land. These features are environmental attributes, but they are also considered natural physical constraints to development. The maps on the following pages illustrate the land elevation, 100-year floodplain, and wetlands (tidal and non-tidal) of the County.

When all of these constraints are considered, there is little land available for new development that does not encounter challenges. As shown in the Composite Constraints map, most of the areas that can appropriately accommodate development are located in the northern part of the County.

Recurrent flooding and inundation of land has been an issue within Mathews County. In depth discussions on the causes and possible solutions continues to be an ongoing occurrence within the Mathews Community. The County has utilized professional resources inside and outside the region to help circumstances surrounding recurrent flooding and to explore options for mitigating the impacts.

The Middle Peninsula Planning District Commission and the Mathews County Planning Commission have partnered to acquire funding and explore options to address the impacts and local options to address recurrent flooding due to sea level rise and subsidence. A current effort being funded through Virginia's Coastal Zone Management, looks at planning, financial and regulatory options available to rural coastal local governments in the Middle Peninsula to assist with mitigating the impacts of flooding and sea level rise in coastal communities. The project seeks to identify and explore planning and development techniques that may be implemented at the local level to encourage and steer development to properties located outside of high risk flood hazard areas. The final report will include recommendations to the Planning Commission on various measures that are specific to addressing the issues and concerns of Mathews County.





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ELEVATION RANGES

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FLOODPLAIN

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**WETLANDS**

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COMPOSITE DEVELOPMENT CONSTRAINTS

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**Soils and Protection of Shorelines and Streambanks**

The soils of Mathews County are shown on the map on the following page. Much of the soil in the County is of the Fallsington fine sandy loam series. The next most common soil type is the Dragston fine sandy loam which is found along most of the County shorelines. The following table summarizes the soil units in the County and provides insight into their acreages. A more detailed description of each of the soil categories is included in the Appendix.

Mathews County, Virginia (VA115)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Be	Bertie very fine sandy loam	78.4	0.1%
Cb	Coastal beach	249.5	0.3%
Dr	Dragston fine sandy loam, shallow	5,554.8	6.1%
Ek	Elkton silt loam	127.2	0.1%
Fa	Fallsington fine sandy loam	33,006.6	36.0%
GP	Gravel Pit	82.1	0.1%
KeA	Kempsville fine sandy loam, 0 to 2 percent slopes	1,414.6	1.5%
KeB	Kempsville fine sandy loam, 2 to 5 percent slopes	300.2	0.3%
KtA	Kempsville loamy fine sand, thick surface, 0 to 2 percent slopes	3,298.8	3.6%
KyA	Keyport silt loam, 0 to 2 percent slopes	109.7	0.1%
KyD2	Keyport silt loam, 8 to 12 percent slopes, eroded	131.3	0.1%
Ma	Mixed alluvial land	164.7	0.2%
SaA	Sassafras fine sandy loam, 0 to 2 percent slopes	251.3	0.3%
SaB2	Sassafras fine sandy loam, 2 to 5 percent slopes, eroded	163.2	0.2%
SdA	Sassafras loamy fine sand, 0 to 2 percent slopes	218.4	0.2%
SsD	Sloping sandy land	428.5	0.5%
StE	Steep sandy land	358.7	0.4%
Th	Tidal marsh, high	640.9	0.7%
To	Tidal marsh, low	2,728.7	3.0%
W	Water	37,402.4	40.8%
Wo	Woodstown fine sandy loam	4,883.4	5.3%
<b>Totals for Area of Interest</b>		<b>91,593.4</b>	<b>100.0%</b>

Source: USDA Natural Resources Conservation Service. April, 2009.



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SOILS

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The most erodible soils are those of the Keyport silt loam and Sloping and Steep Sandy Loam series. These soils are found along the streambanks of the Piankatank River and Queens Creek in the northern part of the County. A map showing the locations of these erodible soils is on the following page.

In 2008, the Virginia Institute of Marine Science updated the *Shoreline Assessment and Inventory of Mathews County*. A final report **completed in 2010** provides detailed information on the shoreline vegetation, existing stabilization structures, and erosion conditions;<sup>16</sup> It is used as a tool to understand the shoreline conditions of the County, particularly with respect to making better decisions on shoreline management. A map of the shoreline inventory that illustrates shoreline erosion conditions follows the erodible soils map in the preceding pages. This map was prepared based on information provided by VIMS related to the shoreline inventory study. The Shoreline Inventory Report should be referenced for more specific information on a site basis for such elements as riparian land use, streambank conditions and shoreline features, including structures. This informative report and detailed maps are available on line at <http://ccrm.vims.edu>.

A companion initiative beneficial in assisting shoreline management is *Living Shorelines for the Chesapeake Bay Watershed*, prepared by the Center for Coastal Resource Management at VIMS. This collaborative project provides extensive information on natural methods for protecting tidal shorelines using native wetland plants, grasses, shrubs and trees. The benefits of choosing living shoreline techniques include: reduced costs for shoreline stabilization, enhanced water quality, increased wildlife habitat and access, and reduced wave energy. The report is an excellent guide for property owners in understanding and managing their shorelines. The living shoreline report and the shoreline inventory report is useful to property owners, contractors, and the County Wetlands Board in helping to assess the best environmental practices for shoreline stabilization.

#### **Siting of Docks, Piers, and Structures**

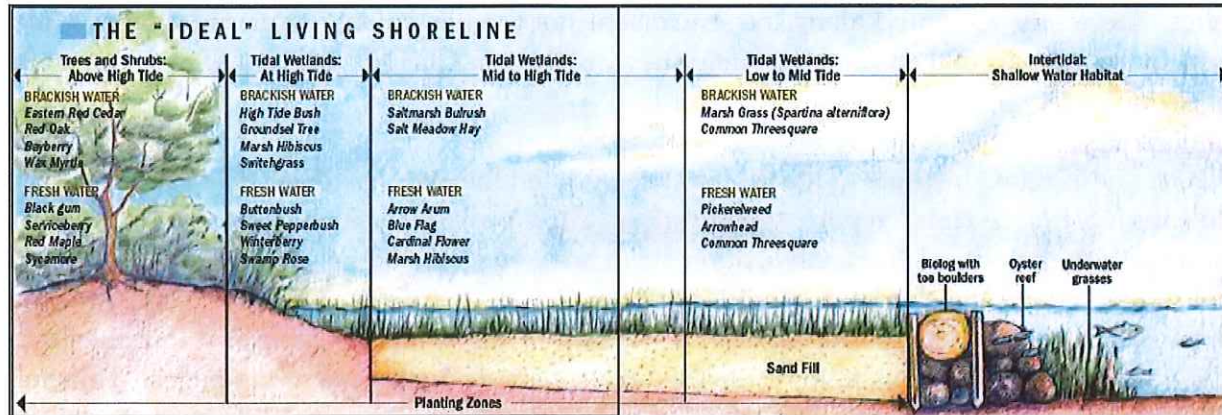
In accordance with the Chesapeake Bay Act, the local government must manage the placement of docks, piers and shoreline structures. In Mathews County, this is done through the Wetlands Board and various federal and state permitting agencies. The most comprehensive assessment of shoreline structures for Mathews County is that compiled by VIMS as part of the *Shoreline Assessment and Inventory of Mathews County*. Detailed maps of shoreline structures are available on line at [http://ccrm.vims.edu/gis\\_data\\_maps/shoreline\\_inventories/virginia/mathews](http://ccrm.vims.edu/gis_data_maps/shoreline_inventories/virginia/mathews). Property owners and interested parties should consult this mapping tool and other resources to determine the best management practices and appropriate locations for shoreline structures.

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<sup>16</sup> Virginia Institute of Marine Science, Center for Coastal Resources Management. May 2009, Draft. *Mathews County, Virginia Shoreline Inventory Report Methods and Guidelines*.

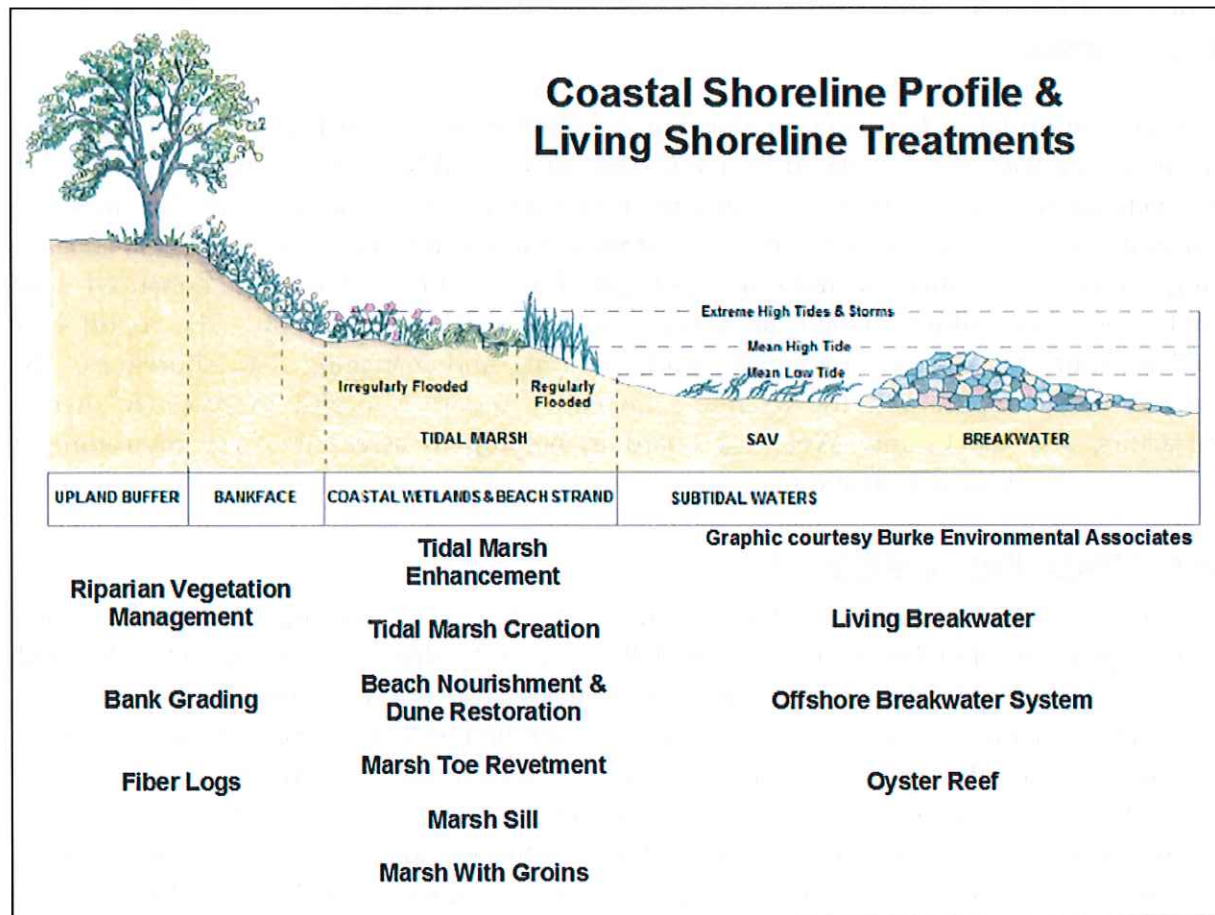


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Graphics illustrating the living shoreline.

Source: Living Shorelines for the Chesapeake Bay Watershed. VIMS, Center for Coastal Resource







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**ERODIBLE SOILS**

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SHORELINE INVENTORY (VIMS, 2009)

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**Protection of Potable Water Supply**

Because the water table in Mathews County is located very near the surface, there is considerable potential for contamination of groundwater and potable water supplies.

One of the principal sources for contamination is from septic systems. Unsaturated soil is essential for treating wastewater. In particular, the permeability of the soil to allow the flow of water through it over a sufficient period of time to filter contaminants is especially important. The permeability of the soils in Mathews County is very limited. A map illustrating the permeability is found on the following page. As indicated, soil permeability is between 0.6 and 6.0 inches per hour for most areas of the county; this absorption capacity is a challenge for septic systems (as shown in the additional map). The northern part of the County and a limited amount of inner shoreline on the East River provide the better opportunities for handling septic systems.

The Middle Peninsula Planning District Commission administers a septic pump out program that provides financial support to low-to-moderate income residents in Middle Peninsula localities. The program, funded through the Virginia Department of Environmental Quality, seeks to promote water quality of the Chesapeake Bay by subsidizing the cost of septic pump out of local residents who may be overly burdened by the cost. The program has received limited funded from DEQ in 2015 and 2016 with no guarantees for future funding.

The MPPDC also administers a septic repair program for Middle Peninsula residents in the way of grants and reduced rate loans. While loan funds are still available, grant funds have been depleted. No new grant funds are immediately available or anticipated.

Since the 2000 Comprehensive Plan, there have been public facility improvements that have reduced the potential for contamination of the potable water supply. The County landfill has been closed and the Virginia Peninsula Public Service Authority continues to monitor the landfill in accordance with the regulations of the Virginia Department of Waste Management. The central wastewater treatment plant in the Mathews Courthouse area has been eliminated and replaced with a sanitary sewer transmission force main.

In 2010, The Hampton Roads Sanitation District began construction on a new sanitary sewer transmission force main from Mathews Court House along Route 198 and Route 3 to Gloucester County. (Additional information on this initiative is found in the Public Facilities and Services (Utilities) section of this plan. While this initiative should help to reduce contamination impacts on potable groundwater, the County will need to provide careful oversight in the future to ensure a safe and ample water supply. This will involve very close coordination with the Virginia Department of Health, and public education on the maintenance of septic and alternative waste systems.



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Other sources of potential water contamination are underground storage tanks (USTs), agricultural runoff, animal wastes and discharges from boats. While many agricultural operations may utilize best management practices, there is an opportunity to increase public communication with citizens and businesses to promote improved agricultural practices that will enhance water quality. Proper maintenance, installation, or removal of USTs is guided by the Virginia Department of Environmental Quality; information on best management practices can be found at <http://www.deq.state.va.us/tanks/usts.html>.

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SOIL PERMEABILITY

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SEPTIC SYSTEM ABSORPTION CAPACITY

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#### Access to the Waterfront

Mathews County is extremely fortunate to have 280 miles of shoreline. This tremendous asset is highly valued by residents and County officials because of its contribution to the area's quality of life, recreation, and local economy. In 2003, the County adopted a *Statewaters Access Management Plan* that provided information on all public access areas and marinas throughout the County. The plan also includes specific recommendations and priorities for improving public facilities. More detailed information on this waters access plan is found in the preceding section, Public Facilities and Services (Recreation).

The Middle Peninsula Chesapeake Bay Public Access Authority (PAA) was created by the General Assembly in 2002 in an effort to increase public access to the Chesapeake Bay. The PAA Altruistic Giving Program has acquired hundreds of acres of privately donated waterfront property in localities throughout the Middle Peninsula including Mathews County. Property acquired by the PAA is used for public waterfront access and recreation which helps to improve the quality of life of local residents while supporting the tourism sector of the County's economy. Waterfront properties donated to the PAA are also conserved and generally restricted for development thereby serving as a natural buffer and filtration system. The PAA works with local governments including Mathews County to ensure that donated lands are used in compliance with local codes as well as in keeping with the natural environment of the communities. The PAA and the county have worked to formulate and implement a plan for the use of Mathews Heritage Park, a public waterfront access site donated to the PAA and located in the Moon area.

#### Climate Change

In recent years, there has been continued discussion about climate changes that are being experienced around the world. While there are varied opinions on causes and ultimate effects, it is recognized that changing weather patterns may contribute to rising sea levels which could significantly affect both inland and coastal communities. Regardless of the causes of climate change, as well as the pace and magnitude of such changes, it is essential that communities appropriately plan for changing trends and adjust their development patterns to minimize potential adverse impacts.

Sea level rise in conjunction with shoreline erosion and coastal subsidence (or sinking) is a concern for coastal Virginia. This is especially important for populated areas in terms of property damage and safety concerns as well as in terms of potential impacts on natural communities responding to changes in vegetative patterns, wildlife populations, and chemical responses due to temperature variation, runoff, varied rainfall, etc.

Intense development patterns, rising sea levels, along with the potential for stronger storms pose increasing threats to coastal communities, infrastructure, beaches, wetlands, and sensitive ecosystems. With respect to the mid-Atlantic region, rising water levels, erosion and coastal subsidence are already affecting low-lying lands, eroding beaches, converting wetlands to open



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water, and exacerbating coastal flooding. Consequently, the County should consider additional approaches for adapting to a changing coastline. Short-term structural solutions (e.g., rip-rap revetments, breakwaters, bulkheads, elevating structures, etc.) will not sufficiently address all anticipated changes. Shifts are needed in federal, state and local policies with respect to more long-term land-use planning and environmental protection and preservation. County efforts, such as the recurrent flooding study project, currently underway with the MPPDC is an example of an approach to addressing the flooding and sea level rise impacts through local policy changes. A combination of local land use tools, financial incentive programs and/or acquisition and conservation programs are being deployed by coastal jurisdictions to manage the impacts of flooding due to sea level rise. The ultimate decision moving forward on the issue will be determined by the County's objectives in balancing the economy, respecting private property rights, and protecting local infrastructure while preserving the environment.

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**Land Use, Development and Redevelopment of Resource and Management Areas**

Given development constraints and the potential long-term effects of climate change, future land development and redevelopment in Mathews County must be carefully planned and coordinated with environmental features. This includes not only new buildings and the rehabilitation of existing structures, but also the development of supporting public infrastructure. The next section on Land Use provides a more detailed analysis of existing land use and development patterns and presents recommendations for addressing outstanding issues and amending land development patterns to meet the goals of the future.

**Environmental Challenges and Opportunities 2030**

The environmental resources of Mathews County provide for the economic and social well-being of residents and businesses. Careful planning and management of the environment, and in particular water quality, must be a priority in order to sustain the quality of life that is cherished by citizens and visitors. These environmental resources also include complex ecosystems that are sensitive to such things as stormwater and agricultural runoff, inadequate wastewater treatment, soil erosion, and changes in temperature, rainfall and overall climate. All of these challenges are intended to be monitored and managed in conjunction with Chesapeake Bay and Clean Water regulations, among others; however, it takes many partners, extensive public education, and diligent communication to successfully achieve desired environmental goals and outcomes. Ultimately, clean water is essential to community health, safety and welfare. It will be important to pursue and emphasize effective means of monitoring and treating point and non-point source pollutants to achieve the water quality desired for Mathews County and the surrounding region. Traditionally, planning in Mathews County has focused only on land area within the County boundaries; changing the paradigm to expand planning beyond the land and over the water (still within County territorial boundaries) could significantly help to manage future water quality and minimize land use conflicts.

One of the most difficult challenges for Mathews County will be appropriately balancing the increasing conflicts regarding use of and access to the waterfront. Understandably, waterfront residents have personal interests for using and protecting their properties, while waterfront businesses have need for water access and the ability to engage in aquatic trades. In addition, citizens of the County have rights to the waterfront for access and recreation. Yet, underlying all of these interests are the sensitive environmental systems that must be recognized and protected in order to sustain the quality of life desired by all.

The potential rise in sea level should be one of the factors considered in future development patterns. Over time, it is probable that there will be changes in vegetation, the landscape, and flooding patterns. The projected degree of impact is widely discussed and varies among experts and designated study panels. Thus, to be most effective it is best be conservative when selecting sites for public facilities or permitting development in areas that may be susceptible to possible rising sea levels. In addition, because the expansive wetlands of Mathews County are



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important to the physical and ecological attributes of the region, it will be important to ensure that these beneficial communities are not depleted, but rather protected and allowed to transition naturally.

Like many communities, Mathews County residents are interested in maintaining the natural environmental character and reducing unnecessary lighting at night. The adoption of a “dark sky” ordinance can assist the County in reducing spillover lighting and maintaining natural conditions that are enjoyed by residents and important for the environment. New development could be required to provide “shielded” lighting fixtures and appropriate lighting standards could be established to ensure safety, yet control maximum illumination.

**Planning/Development Policies, Action Strategies for Environment 2030**

The following planning and development policies and action strategies are established to achieve the desired vision for sustaining a quality environment in Mathews County:

Development Policies and Strategies for Environment	
EN1	Environmental resources are the natural and the economic foundation of the quality of life in Mathews County. Protection of natural resources and maintenance of excellent water quality and clean air are essential to the safety and prosperity of businesses and residents. For new development and redevelopment, there should be no net increase in environmental loss or pollution.
	1. When considering new development or redevelopment, evaluate potential impacts on environmental features and water quality, particularly with respect to runoff, pollutants and waste management. <del>Require mapping of environmental features for reference and applicant study/response to potential impact. Require use of low impact development techniques (or “light imprint” alternatives<sup>17</sup>) in conjunction with site development or redevelopment. These are in addition to use of best management practices and recommended design and development guidelines.</del>

<sup>17</sup> Light imprint techniques for managing runoff are similar to low-impact engineering methods; they result in a blended system of engineering techniques and aesthetic design features that complement the natural and the built environment. For more information, see [www.lightimprint.org](http://www.lightimprint.org).





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Development Policies and Strategies for Environment	
	<del>2. Develop and publish a quick reference guide for citizens, contractors, and developers that illustrate use of low impact or light impact development techniques for several development scenarios—single family home, small business, waterfront development, etc. Focus on good site design that minimizes disturbance of land, preserves indigenous vegetation, and minimizes impervious cover.</del>
	2. Amend the Zoning and Subdivision Ordinances to incorporate the most up to date performance criteria for improving water quality in order to comply with Chesapeake Bay Act Phase III Regulations. <u>Consider implementing the recommendations identified in the CBPA Land Use Ordinance Compliance Review and Analysis Report prepared by the Berkley Group consultants.</u>
	3. <del>Amend the County zoning ordinance to include a Floodplain Overlay District to expand the available tools for reducing flood insurance rates and protecting public and private investment.</del> Strengthen development standards and identify types of land uses permitted in the flood hazard and storm induced wave zones (e.g., A/AE, V/VE, and <b>Coastal A or LiMWA zones</b> ). Seek funding from the Hazard Mitigation Grant Program through FEMA to reduce hazards and losses.
	4. Encourage new development or redevelopment that is designed to meet “green building” standards such as LEED. (This can reduce impervious surfaces, reduce water and energy consumption, minimize site disturbance, and reduce pollutants.) <del>Accept the state wide challenge and participate as a County partner in the Go Green Virginia Campaign managed by the Virginia Municipal League, <a href="http://www.gogreenva.org">www.gogreenva.org</a>.</del>
	5. Promote water conservation for public health, safety and welfare by encouraging <del>(and requiring where possible)</del> the use of <b>low-flow high efficiency</b> water fixtures, showerheads and toilets in all new residential and business development. Encourage appropriate residential and business development that will not have large demands on the potable water supply. Promote water conservation and wise water consumption through public education.
	<del>6. Develop a wellhead protection program that establishes minimum requirements for locations of wells and adjacent development. Amend County regulations to implement development standards and well</del>



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Development Policies and Strategies for Environment	
	<del>protection measures for potable water supplies.</del>
	6. Sponsor, coordinate and promote regular septic tank pump-out programs throughout the County. <del>Designate priority “pump-out zones” and adopt regulations to ensure compliance.</del> Identify existing pit privies and seek better alternative solutions for managing waste. Seek grants and financial programs that can assist the County in these priority efforts.
	7. Promote increased public education regarding water quality impacts of non-point source pollutants. In particular, encourage proper disposal by boaters of bilge water (contains contaminants) and improved management of livestock near surface waters. <u>Implement the recommendations in the Total Maximum Daily Load (TMDL) Implementation Plan to address impairments to shellfish waters as a result of coliform bacteria contamination in selected waters of the County.</u>
	8. Amend the County subdivision ordinance to establish better standards and requirements for development of community water and wastewater systems in order to improve and protect water quality and provide a safe water supply for users. Requirements should exceed the minimum standards required by the health department.
	<del>9. Consider expanding the Chesapeake Bay Resource Management Area in Mathews County to better manage development impacts on the environment.</del>
	9. Develop and adopt a <del>“dark-skies”</del> ordinance <u>language</u> that will require shielded lighting for new building development and establish appropriate lighting standards for inland and waterfront properties.
EN2	<b>Mathews County has a strong community heritage in agriculture, aquaculture and forestry. These natural resource trades remain important economic sectors and should be encouraged and supported in order to maintain community character and prosperity.</b>
	1. Protect the environment by continuing to promote and encourage the use of best management practices and riparian buffers prescribed by the Tidewater Soil and Water Conservation District and the Virginia Department of Forestry for agricultural and forestal activities. Promote environmental stewardship among landowners and operators by actively working with them in educational efforts and incentive or recognition





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Development Policies and Strategies for Environment	
	programs. Encourage landowners to consider conservation easements for their properties.
EN3	The wetlands of Mathews County are critical environmental features that are of substantial benefit to the health of natural systems and to coastal living. Protection and preservation of County wetlands should be a priority in order to sustain environmental quality, public health and safety, and the valued character of the community.
	1. Encourage vegetative approaches and “living shoreline” techniques where appropriate for stabilizing coastal property waterfronts. Develop public education materials and programs that will promote use of these techniques.
	2. Offer “living shoreline” training for wetland board members, contractors and others who are involved in coastal property management. Provide continued leadership in this effort by helping to establish a “certification” program for wetland board members and contractors that can be a model for other communities.
	3. Support annual inventories of County wetlands and other natural resources. Encourage regular reporting and sharing of information among agencies, governmental officials, and citizens.
	4. Utilize <u>VIMS’ Comprehensive Coastal Resource Management Portal Shoreline Best Management Practices</u> in evaluating existing conditions and proposed plans for development. <u>Consider adopting a policy for the Wetlands Board where “living shorelines” become the preferred adaptation strategy for shoreline erosion control.</u> Integrate into governmental permitting, Wetlands Board decisions, and planning recommendations.
	5. Utilize VIM’s Decision Tree for onsite review and subsequent selection of appropriate erosion control/shoreline BMPs.
	6. <u>Follow development of the integrated shoreline guidance and the statewide General Permit developed through the Virginia Marine Resources Commission. Ensure that local policies are consistent with the provisions of the permit.</u>
	7. <u>Encourage the installation of “living shorelines” through state and local</u>



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Development Policies and Strategies for Environment	
	<u>financial incentive programs.</u>
EN4	The waterfront of Mathews County is a valuable ecological, recreational and scenic asset that should be available to all citizens. Use of waterfront lands should be balanced to provide reasonable access points for the public and protection of the environment, while recognizing the rights of private residential and business property owners.
	1. Review and update the County Statewaters Access Plan at least every five years to ensure that public access and recreational needs are met. Update the 2003 Plan with the Parks and Recreation Master Plan.
	2. Site any new waterfront community facilities or marinas in accordance with the checklist and criteria established by the Virginia Marine Resources Commission for Marinas and Community Facilities for Boat Mooring (1988, www.mrc.state.va.us). Coordinate locations with aquaculture and blue infrastructure resources to minimize land use conflicts and ensure protection of water quality.
	3. Identify desirable waterfront and off-shore locations for pursuing aquaculture. Develop a strategy for improving water quality, managing land use, and reducing development and pollution conflicts.
	4. Consider amending the zoning ordinance to define “floating home/structure” as a use and identify zoning districts in which this use may be permitted or is specifically prohibited.
EN5	Sea level rise, shoreline erosion and coastal subsidence over the next several decades are projected to have effects on coastal areas and natural communities. To adequately prepare for possible changes in rising sea levels and weather patterns, development should be carefully reviewed and managed to take into account the potential impacts. Where possible, conservation measures should be employed to protect natural communities and prevent investment losses in the future.
	1. Promote conservation in the eastern and southern coastal areas of Mathews County that may be most affected by possible rising sea levels and flooding. Amend the County zoning ordinance to address possible sea level changes and develop appropriate use regulations and development standards. Consider amending the zoning ordinance to <u>include language regarding horizontal as well as vertical shoreline setback requirements.</u> <u>Consider preserving additional open spaces adjacent to tidal wetlands</u>





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Development Policies and Strategies for Environment	
	<u>beyond the Chesapeake Bay Preservation Act Resource Protection Area to allow for inland retreat of marshes potentially affected by rising water levels.</u>
	2. Plan, site and develop new public buildings and facilities so that they take into account possible rising sea levels. Require evaluation of impact as part of the governmental contract for services. Locate facilities in the most appropriate areas.
	3. Protect existing facilities from possible sea level rise through advanced planning and implementation of environmentally acceptable protection methods.
	4. <u>Consider adopting land use policies using appropriate recurrent flooding mitigation tools for Mathews County. Identify financial incentives and planning and regulatory tools as approaches to address this potential problem.</u>



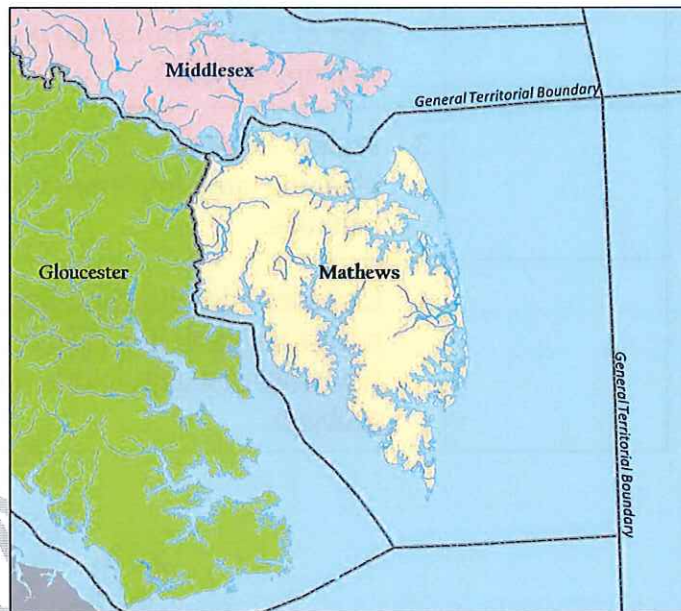
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#### **Environment: Special Action Projects**

Sustaining the environment of Mathews County will provide the greatest benefits to citizens and businesses for the future. The following paragraphs discuss some initial projects that can assist the County in progressing toward the established goals and strategies for protecting and enhancing the environment.

#### **Planning for Land and Water within County Territorial Boundaries**

To effectively plan for continued safety and well-being in the County, there must be expanded controls and management of the territorial waters surrounding the County. This will require developing new tools and working regionally with other local governments and environmental agencies to model specific legislation and methods to improve water quality in the Chesapeake Bay watershed and better manage land/water use conflicts (particularly with respect to aquaculture and "floating homes"). Public education and communication are essential to the success of the efforts and the adopted programs.



Source: Middle Peninsula Planning District Commission.  
Aquaculture Steering Committee 2009.





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##### Model Certification & Training Program - Wetlands Board

Enhanced environmental conditions in Mathews County can significantly assist in addressing many challenges for the future – water quality, economic investment, rising sea levels, and community character and quality of life.

In recent years, considerable research and mapping has been completed for Mathews that provides extensive insight into the physical and environmental conditions. Research reports include the *Shoreline Assessment and Inventory for Mathews County* (VIMS) and the *Living Shoreline* (Chesapeake Bay Foundation). Both of these reports provide excellent guidance for property owners, contractors, and reviewing officials in understanding shoreline conditions and in making recommendations for stabilization and ecological and vegetative improvements.

One simple way to encourage use of these documents and methods is to integrate them into the County review process for development permit applications. Initially, this could be done by encouraging training of County staff, wetlands board members and contractors. A “certification” and training program could be developed which then could serve as a model for other communities. The reference documents could be posted as links on the County webpage and copies made available at the library or other public offices.

